

REMARKS

The Office Action dated December 19, 2008 has been reviewed and carefully considered. Claims 1 -10 remain present in the application. New claim 12 has been added. Claim 1 and 12 are the only independent claims. Reconsideration of the above-identified application, as amended and in view of the following remarks, is respectfully requested.

Claims 1-10 are rejected under 35 U.S.C. §101 as not falling within one of the four statutory categories of invention.

Claim 1 has been amended to recite the use of one or two cameras being used to obtain the image(s) as the first step of the method claim. Support for this amendment is found, inter alia, in paragraph [0033] of the published application: "The objects 2 are captured by cameras 4."

The use of cameras in the claimed invention complies with the patentability requirement noted in paragraph 4 of the Office Action: "(2) transform underlying subject matter (such as an article or material) to a different state or thing." Further, the use of cameras in the present invention is analogous to the facts in Abele, 684F.2d, 214 USPQ in which a claim was held patent-eligible for the following reasons:

"[W]e held one of *Abele*'s dependent claims to be drawn to patent-eligible subject matter where it specified that 'said data is X-ray attenuation data produced in a two

dimensional field by a computed tomography scanner.’ Abele, 684 F.2d at 908-09. This data clearly represented physical and tangible objects, namely the structure of bones, organs, and other body tissues. Thus the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.”

Accordingly, applicants submit that claims 1-10 meet the requirements of 35 U.S.C. §101 as being within one of the four statutory categories of invention, and request that the rejection under 35 U.S.C. §101 be withdrawn.

Claims 1-10 stand rejected under 35 USC 102(e) as being anticipated by Baumberg et al., US 2002/0186216, (Hereinafter, “Baumberg”). Applicants respectfully traverse.

Claim 1 of the present invention, as amended, recites:

Method for acquiring a substantially complete depth map from a 3-D scene with the steps of:

- a) acquiring at least one image of said 3-D scene using less than three cameras,
- b) acquiring partial depth map from said at least one image,
- c) acquiring derivatives of depth information from said at least one image,
- d) extending said partial depth map by adding non-relevant information to said partial depth map, creating a pixel dense full depth map being spatially consistent with both said partial depth map and said derivatives of depth information.

As noted in the Office Action, Baumberg disclosed a method for acquiring a substantially complete depth map from a 3-D scene. The Office Action at paragraph 7,

submits that the acquiring partial depth map step (paragraph b) of amended claim 1 is taught by Baumberg's feature of "generating data defining a 3D computer model of a subject object by processing depth maps" [0047]. Clearly, this feature of Baumberg significantly differs from the invention as defined by claim 1 where a partial depth map is acquired from an image obtained from only one or two cameras.

Figs. 1a and 1b of the present invention depict the camera arrangement and resulting partial depth map that corresponds to claim 1 of the present invention. Baumberg's invention differs significantly:

According to the present invention, there is provided a computer processing apparatus and method, in which a 3D computer model of a subject object is generated by converting each of a number of depth maps of the subject object into a respective polyhedron and calculating the intersections of the polyhedra (Baumberg at [0011]).

Further, Applicants submit that Baumberg teaches away from the present invention. In particular Baumberg states: "Because the method intersects volumes, it is not necessary to segment each depth map to identify points relating to the subject object and points relating to other objects" [0014]. In the present invention, these boundary points are depth discontinuities (e.g. 14a and 14c of Fig. 1b and items 16 of Figs. 3a-3c) that are important features in the step of "acquiring partial dept map." (e.g., see [0035]: "As depicted in FIG. 3b, the accuracy of depth information is shown by range 8b. In case of discontinuities and of high amount of local texture, the accuracy is high, the uncertainty small," and [0038] in which qualitative processing is described with respect to depth discontinuities).

Moreover, the polyhedra of Baumberg's invention require the use of more than two cameras (as depicted in his Figs. 3 and 9) since by definition, a polyhedron is a solid bounded by a polygon (a polygon being a closed figure bounded by 3 or more line segments). Clearly, the two-dimensional image analysis of the present invention (relying on images obtained from one or two cameras) is not taught by Baumberg's three dimensional polyhedra analysis.

A claim is anticipated only if each and every element recited therein is expressly or inherently described in a single prior art reference. Baumberg cannot be said to anticipate the present invention, because Baumberg fails to disclose each and every element recited. As shown, Baumberg, inter alia, fails to disclose a method for acquiring a substantially complete depth map from a 3-D scene which comprises the steps of a) acquiring at least one image of said 3-D scene using less than three cameras, and b) acquiring partial depth map from said at least one image.

Having shown that Baumberg fails to disclose each and every element claimed, applicant submits that claim 1 is allowable over Baumberg. Applicants respectfully request reconsideration, withdrawal of the rejection and allowance of claim 1. Claim 12 recites similar features to that of claim 1 and is deemed patentable for the same reasons.


With regard to claims 2-10, these claims ultimately depend from claim 1, which has been shown to be not anticipated and allowable in view of the cited references.

Accordingly, 2-10 are also allowable by virtue of their dependence from an allowable base claim. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

Dan Piotrowski
Registration No. 42,079



By: Thomas Onka
Attorney for Applicant
Registration No. 42,053

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Mail all correspondence to:
Dan Piotrowski, Registration No. 42,079
US PHILIPS CORPORATION
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9624
Fax: (914) 332-0615

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Thomas J. Onka
(Name of Registered Rep.)

Thomas Onka 3/19/09
(Signature and Date)